BREASTFEEDING

(Health Professional's Book of References on Breastfeeding as applied to Hospitals, Maternity Homes and Obstetric Practice)

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COMMUNITY HEALTH CELL
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MATERNITY HOME PRACTICES AND BREASTFEEDING

(Health Professional's Book of References on Breastfeeding as applied to Hospitals, Maternity Homes and Obstetric Practice)

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PREFACE

In recent years, there has been significant advances in the field of Human Lactation and Breastfeeding Management. For instance, we have learnt that breastfed babies are less prone to insulin dependent diabetes, atherosclerosis, demyelinating disorders and lymphomas; even diluted breastmilk can kill amoeba and giardia; expressed breastmilk can be stored at room temperature for at least 6 hours and given safely to the baby; first breastfeed of a baby may last more than 30 minutes; babies need not be breastfed from both sides at each feed and that treatment of sore nipples is frequent breastfeeding rather than stoppage of breastfeding.

The first days of breastfeeding after delivery are crucial. Events that take place at this time can influence either negatively or positively all aspects of feeding.

Fortunately increasing number of health workers are following maternity home practices conducive to successful breastfeeding. At the same time, a large number of hospitals around the globe continue to follow outmoded practices that are detrimental to the establishment and maintainence of breastfeeding. In order to assess the situation in Bombay, the Assoication for Consumers Action on Safety and Health undertook a study of maternity home practices in relation to breastfeeding in the city of Bombay between January and December 1988 (p. 83). During this study, many health professionals suggested that a book giving latest information on the subject of hospital practices conducive or detrimental to successful breastfeeding should also be compiled. To meet that need, this book with appropriate referances has been specially prepared for obstetricians, pediatricians and nurses who work with pregnant and breastfeeding women. Research workers may also find it useful.

Our sincere thanks are due to Mr. Nilu Damle for his ideas and help in the publication of this book in its present form. We would also like to thank Ms.

Bernadette Norris for typing the manuscript. Since this publication is an outcome of the Study of Maternity Home Practices in Relation to Breastfeeding in Bombay, we would like to acknowledge the support of UNICEF Regional Office for South Central Asia in carrying out this study and for the publication and distribution of this book.

Dr. R K Anand
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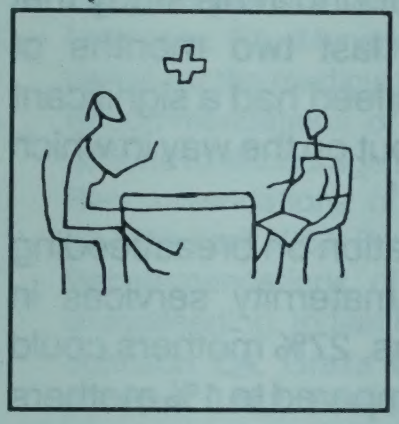
ROLE OF HEALTH PROFESSIONALS AND MOTIVATION FOR BREASTFEEDING



The obstetricians and others concerned with maternity care have key roles in promoting breastfeeding.[1–3] Since women have confidence in their obstetrician's abilities and decisions regarding childbirth, they are also likely to respect their opinion regarding the method of infant feeding.[4]

The International Federation of Gynecology and Obstetrics, Kenya National Workshop on Infant Feeding Practices and the Special Committee on Breastfeeding of Indian Academy of Pediatrics have reaffirmed that the obstetricians have a vital role in giving authoritative advice on breastfeeding.[5–7] They are the ones who can encourage, promote and facilitate breastfeeding the most.

Obstetricians have a vital role in giving authoritative advice on breastfeeding[5–7]

As far as the preferred time of breastfeeding advice and motivation is concerned, the second trimester is considered to be a good time. At this time the mother feels the baby move and begins to make plans for its arrival in a serious manner. It would be ideal if the father could also participate in this discussion.[4]

Many mothers ambivalent towards breastfeeding will be able to nurse successfully if they are reassured and supported. The quality of antenatal care and advice rendered at that time is a factor which clearly affects the success or failure of breastfeeding. Johnson compared a group of women who were given a short personal bedside teaching session while still in the hospital with two other groups. One group just received a card with the name and phone

number of a professional feeding adviser, and the other group was given the same card, plus a manual containing the sort of information that had been given at a teaching session. Significantly more women who had received the individual tution were still breastfeeding at one month post partum, compared with the other two groups.[8]

According to Hutchison, the first pregnancy affords the best opportunity of reaching a receptive listener.[9] de Chateau states that the parents who received more and longer sustained information on breastfeeding were less likely to stop in the first two months. The duration of breastfeeding was almost doubled when fathers received information also.[10] Wiles found in his study that one antenatal breastfeeding class given during the last two months of pregnancy to women who had already decided to breastfeed had a significant positive effect, not only on the duration of breastfeeding but on the way in which the mother perceived herself and the baby postnatally.[11]

Bathija and Anand studied effect of perinatal motivation on breastfeeding in educated mothers in a public hospital providing maternity services in Bombay. In the motivated group of 100 educated mothers, 27% mothers could initiate breastfeeding within one hour after delivery as compared to 1% mothers doing the same in the unmotivated group. 96% mothers in the motivated group breastfed their babies exclusively for at least the 90 days period of observation as compared to 40% only in the non-motivated group.[12]

Antenatal and Perinatal motivation on breastfeeding is of great help towards successful breastfeeding[8–23]

Besides the above studies, importance of antenatal and perinatal motivation has been stressed by nutritionist and pediatricians – including Kimball, Helsing, King, Lawrence and Narayanan.[4,13–16] However, though the knowledge exists, the practice often lags far behind. Sharma studied attitudes of medical and nursing personnel to breastfeeding practices. It was found that no organised effort for giving advice on breastfeeding was made. Routine examination of the breasts was performed in less than half the cases.[17] Datta studied mothers from an urban educated community. All the mothers – barring three stated that they had a desire to nurse but none of them who had received antenatal care in hospitals was given any advice on breast care or breastfeeding. Only five out of eighty who attended private clinics in the antenatal period were favoured with such advice. None of them, at any time in

the antenatal period, ever read any book or literature on breastfeeding of her own accord. Lactation failed in 88% of these women who were young, healthy and had normal healthy infants.[18]

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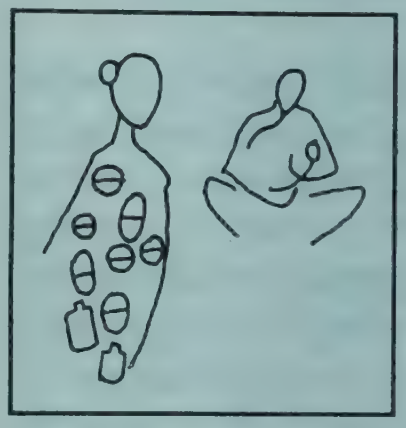
OBSTETRIC PRACTICES DURING LABOUR AND BREASTFEEDING



As episiotomy and caesarean delivery may cause hardship for some breastfeeding mothers, routine use of episiotomy is not justified and vaginal deliveries after a caesarean should be normally encouraged.[1]

The timing of postpartum sterlisation may have significant effects on lactation, either because of the anxiety and stress caused by the procedure or because of the use of sedation and anaesthesia. Milk production was apparently not affected in women undergoing operation within 24 hours of delivery, but there was a significant lowering of milk volume at both 7 and 14 days postpartum in mothers whose tubal ligations were done 4 to 6 days after delivery.[2]

Babies born to 'overdoped' mothers do not develop normal feeding patterns until the fourth or fifty day.[3]

Also, during delivery, the routine administration of analgesic or anasthetic drugs should be avoided. Excessive doses of pain killers during labour (especially drugs like pethidine) are probably responsible for more breastfeeding failure than people have realised. A mother's attachment to her baby will undoubtedly be delayed if she is overdosed with pain-killing drugs. The babies born to 'overdoped' mothers do not develop normal feeding patterns until the fourth or fifth day.[3] Winikoff states that medications given in labour can inhibit sucking and render feeding interaction more difficult for upto ten days postpartum.[2] According to Countryman maternal sedation may influence the neonate's sucking for a week or more.[4] Decreased sucking leads to decreased consumption of milk by the infant and decreased stimulus for milk production in the mother. This has been demonstrated in a study as long back as 1961 by Brazelton. A group of mothers were administered barbiturates

during labour. On the first post partum day, 30% of heavily medicated mothers were considered "effective" breastfeeders as compared to 65% of lightly medicated mothers.[5]

Some drugs may directly interfere with milk secretion. Ergonovine maleate interferes with prolactin secretion and thus may decrease milk production.[6] The use of synthetic hormones to induce labour might make the breast unresponsive to the smaller physiological dose of oxytocin needed for successful lactation.[7]

The obstetrician has to therefore make a judicious discretion while choosing obstetric procedures or practices which on the one hand try to provide either comfort to the mother or help in delivering the newborn, and on the other hand may interfere with proper lactation. Joint WHO/UNICEF meeting on infant and young child feeding recommends that obstetrical procedures and practices should be consistent with the policy of promoting and supporting breastfeeding.[8] A similar view has been stressed in the recommendations of the International Federation of Gynaecology and Obstetrics for actions to encourage breastfeeding.[9]

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INITIATION OF BREASTFEEDING : THE FIRST FEED AT THE BREAST

It has been observed that sucking reflex of newborn is at its height twenty to thirty minutes after birth. If the infant is not fed then the reflex diminishes rapidly to reappear adequately forty hours later. On the other hand, if the infant is put to breast within half an hour after birth, he takes the breast well and early physiological weight loss is prevented.[1] This may be called "The fourth stage of labour" which includes putting the baby to breast after birth and ensuring the intake of colostrum by the neonate.

In most cultures, if the baby is mature and vigorous, he will be put to breast at once after delivery.[2] The mother may probably want to nurse her infant immediately after birth, if she has read the current literature about early initiation of breastfeeding.[1-11] The exact time of initiation of breastfeeding has been suggested right from birth in the delivery room itself to within one hour after delivery.

Nursing soon after delivery has a laxative effect on the meconium and helps to establish an early bond between mother and child.[11] The early evacuation of meconium tends to decrease the reabsorption of bilirubin from the cast off red blood cells present therein, thereby reducing hyperbilirubinaemia in the neonate. Also the antibody content of colostrum is at its maximum during the first twelve postpartum hours. Early breastfeeding has a physiological effect on the uterus as well, causing it to contract.[12]

The effect of skin-to skin and sucking contact immediately after birth increases the median duration of breastfeeding by 2 1/2 months.[13] In a sample of Norwegian infant, 69% of those who were suckled at birth were still being nursed at the age of 3 months, compared to only 47% of those who were first suckled after six hours.[14] Salariya also found that babies who were first fed within 30 minutes of birth were likely to remain breastfed for longer.[15]

A survey conducted by World Health Organisation found a trend in both developing and developed countries towards longer breastfeeding of infants who were first suckled before they were 12 hours old.[16] Wright studied primipara and found that the prevalence rates of breastfeeding during the first months were higher for British women who first suckled within 12 hours and highest for those who suckled within one hour of birth.[17]

The cultural, traditional and scientific studies dating from 1952 to recent studies favour the first breastfeed soon after delivery[1,5,8,14,18]

The cultural, traditional and scientific studies dating from 1952 to recent studies[1,5,8,14,18] favour the first feed at breast soon after delivery. But this is not a norm in most of the maternity homes and among health professionals. Of 120 women doctors studied in Tamilnadu, India, breastfeeding was started by 16 of them within six hours of birth and in the rest between six and twelve hours.[19] 70% of the doctors and nurses opined that breastfeeds should be initiated after 24 hours of birth.[20] In another study, 34% doctors, 60% of paramedical staff and 96.4% class IV employees opined that it should be started on second or third day.[21] A study done in slums of Bangalore, India revealed that though most of the mothers start breastfeeding their children within 24 hours of birth, only 20% did so within four hours of birth.[22] Infant rearing practices in rural inhabitants of Himachal Pradesh also indicate that 91.7% of newborns were put to breast within 24 hours of birth of which 25.3% were put to breast between 0-6 hours.

Help mothers initiate breastfeeding within half hour of birth.[24]

The above studies about attitudes of health professionals and infant feeding practices in rural as well as urban slum areas indicate the need for a change. Since the association between early sucking and longer periods of breastfeeding hold, it should be exploited to advantage to improve the health of underprivileged infants.[23] A Joint WHO/UNICEF statement (1989) listing "ten steps to successful breastfeeding" includes one of the step - "Help mothers initiate breastfeeding within half hour of birth".[24]

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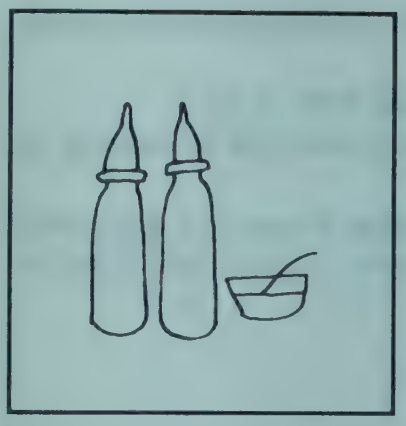
PRELACTEAL FEEDING



In certain hospitals, plain water, 5% dextrose or cow's milk formula is still given as "prelacteal feeds" by doctors and nurses. Some of them have a fear that infant may aspirate while some have an impression that baby needs prelacteal feeds in the first two or three days before the lactation is established. It is often not realised that colostrum is a physiological secretion which if aspirated into the lungs, is not irritating and is readily absorbed. Sugar water and cow's milk formula are very irritating if aspirated.

The concern for an infant with a tracheoesophageal fistula is important, but a few precautions should suffice. If there is hydramnios or excess secretions at birth, a tube should be passed into the stomach to make sure that the oesophagus is patent. There are a few contraindications to immediate direct nursing: (1) a heavily medicated mother (2) an infant with a 5-minute Apgar score under 6 or (3) a premature infant under 36 weeks of gestation. Even in these situations, expressed colostrum may be fed either via tube feeding or with spoon or cup.

The routine administration of prelacteal feeds interferes with both the mother's confidence and hence the let-down reflex, and sucking stimulation and prolactin production.[4-7] Infections may be introduced by prelacteal feeds.[8] The same is stressed by Special Committee of Indian Academy of Pediatrics on Breastfeeding. It recommends that normal newborns do not need any type of prelacteal or supplementary feeding with glucose or artificial milk as colostrum is enough to meet the needs of the newborn baby.[9] A Joint WHO/UNICEF statement 1989 on 'ten steps to successful breastfeeding' also stresses that newborn infants should not be given any food or drink other than breastmilk unless medically indicated.[10]

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SUPPLEMENTARY AND COMPLIMENTARY FEEDING

Recent literature suggests that supplementary and complimentary feeding interferes with lactation and might result in infection and allergy. According to Helsing the most common cause of lactational failure is premature and unnecessary supplemental feeding.[1]

When lactation is going on well supplementary feed is not needed and when lactation is not going well, a bottle may aggravate the problem. Giving a substitute bottle may confuse a new infant. Few reasons given for glucose water supplementation include prevention of all or either of the following: dehydration, weight loss, hyperbilirubinaemia and hypoglycemia. Recent studies show no evidence that glucose water helps prevent any of these conditions and may, in fact, contribute to each.[2] A study of 5000 Malaysian infants found that a baby was 6.26 times as likely to die in the first two months if it received supplemental food.[3]

There is a significant relationship between supplements in the hospital and early discontinuation of breastfeeding. Even a few bottles in the hospital tend to lessen the number of months of breastfeeding.[4] Need for supplementary feeds is a marker of impending trouble and of insufficient milk production. It is best treated with frequent feeding at the breast and some intervention from an experienced support person.

Use of complimentary bottle, that is, those given after breastfeeding to top off the feeding, is the begining of a downhill course. It would be better to take the infant to breast more often or switch back to the first breast if the baby is hungry.

Joint WHO/UNICEF meeting on infant and young child feeding recommended that for optimal breastfeeding, the use of supplementary bottle feeding with water and formula should be avoided.[5]

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ROOMING-IN

The practice of 'Rooming-in' means that the baby is kept within the easy reach of the mother twenty four hours a day in the same room.Today it is the model preferred by mothers themselves, reducing the dependence on health personnel and building up their own self confidence to nurture their children.

When babies are always with the mother, they can be breastfed whenever they are hungry. This unlimited demand feeding helps establishment of lactation, and is associated with a higher prevalence of breastfeeding and a longer duration of breastfeeding after hospital discharge. Studies show that mothers who have their babies with them are twice as likely to succeed at breastfeeding than if their babies are in a nursery.[1] Rooming-in prevents many breastfeeding problems and therefore less work for the ward staff.[2]

Obstetrical practices that separate the mother from the newborn in the post partum period are serious obstacles to the initiation of lactation. Observation of the healthy newborn does not justify separation from the mother. Even a mild illness in full term newborns causing a short period of separation between mother and infant at the begining of life, can decrease the duration of breastfeeding, although the infant continues to breastfeed during the separated period.

Rooming-in promotes breastfeeding, prevents many breastfeeding problems and reduces the workload of the ward staff.[1,2]

According to Gandy and Roberton, it is a 'malpractice' to put together all the infants in a 'nursery' for the nursing staff to 'look after them' and to 'allow

mothers to rest'. The nursing staff do not normally have the time to respond individually to a room full of crying babies. It is almost impossible to take every baby to its mother every time it cries, so the use of nursery means scheduled feeding, and early resort to the supplementary bottle. Therefore, the practice of keeping newborn babies in the nurseries for most of the day and releasing them to their mother for feeding and visitors is archaic, inefficient and cruel.[3]

The delivery room routine and hospital design should encourage close mother-infant interaction right from birth. Babies who remain with their mothers for at least fourty five minutes within the first two hours of life feed and gain weight more satisfactorily; speak at an earlier age, and have a larger vocabulary at the age of two than babies who are separated from the mothers after delivery.[4] Long term effect of extra contact during the first hour post partum was studied.[5] When the infants were 3 months old, detailed observation at home revealed that early contact mothers spent significantly more time looking at their infants face to face and kissing them, whereas control mothers spent more time cleaning their babies. The infants of mothers with early contact cried significantly less and smiled significantly more than infants of control mothers. Early contact mothers also had an increased length of breastfeeding period.

Rooming-in facilities allows the mother to respond to her baby right from the begining. She can feed him or hold him or clean him when she wants to. It increases the interest of mothers in breastfeeding. A study of impact of 'rooming in' on the mother revealed that the women who had the rooming-in experience were more self confident with their infants, more competent in their care and could understand one or more attitudes of their baby's cry at the time of discharge when compared to no rooming-in mothers.[6] Rooming-in facilities enable the physician to interact with the mother to train her in infant care, and to encourage her to breastfeed. A very important element in addition is that many mothers themselves today prefer rooming-in, if provided with the choice.

With rooming-in the wards become quieter as the newborns are either asleep or breastfeeding.[7] Nursing staff have more time for the babies whose mothers are ill and who really do need to be in the nursery for much of the time.[8] The incidence of skin infection as well as of more severe problems such as gastrointestinal and respiratory infections is greatly reduced with the introduction of policy of rooming- in.[9-10]

The case of 'rooming-in' is strong.[11] It should be adopted in every maternity unit. This may require changes in the way the obstetric, neonatal and intensive care units are built. The practice of 'rooming-in' is therefore strongly recommended by International Federation of Gynecology and

Obstetrics, WHO, UNICEF and the Indian Academy of Pediatrics.

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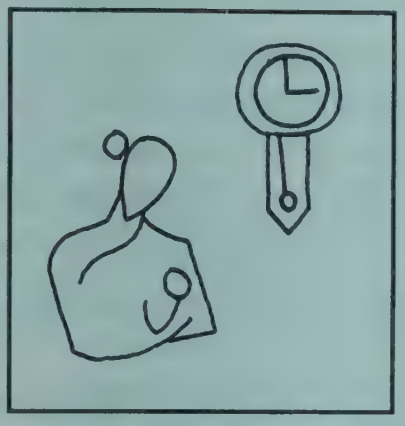
DURATION AND FREQUENCY OF FEEDS



In certain parts of the world infants used to be fed for 3 minutes on each breast on the first day, 5 minutes on the second day, 7 on the third day and so forth. Over the past few years, it has become apparent that feed scheduling, particularly in early lactation, may disturb the normal biology of lactogenesis.

The babies will normally feed for a length of time that is appropriate to the rate of milk transfer, naturally regulating their intake. A baby who takes milk at a high rate will feed for a short time, whereas if milk transfer occurs at a slow rate, the baby will need to feed for much longer.[1] As with all biological systems there is tremendous variability in the rate at which milk is transfered from mother to baby and in the demand for the milk by the baby.

Let the babies be permitted to regulate the duration and frequency of their feeds themselves.[2]

The babies who are permitted to regulate the frequency of their feeds themselves, gain weight more quickly and remain breastfed for longer than those who have arbitrary rules imposed on them.[2] At the start of the feed the baby takes a larger volume of low calorie fore milk, changing to a small volume of high calorie hind milk at the end of the feed. Many babies terminate a feed spontaneously in under 10 minutes; those who have a slower rate of transfer will take longer than this. Even though they may not be consuming large volumes after this time, the milk may be sufficiently high in fat (and therefore calories) to make a significant contribution to the energy value of the feed. If the mother deliberately removes the baby from the breast before he finishes spontaneously, she may be significantly curtailing her baby's calorie intake. In

such situations the baby may fail to gain weight despite frequent feeds and an apparently good supply of milk.[3]

When breastfeeding is established, feeds that are regularly less than an hour apart may be an indication that the baby is incorrectly positioned at the breast. If this is the case, the baby may be unable to consume the high fat hind milk. The low fat feeds he takes will have a rapid stomach transit time and may result in short intervals between feeds. This requires help to the mother in improving her feeding technique.[4]

It is a 'malpractice' to stop a feed after 5 to 10 minutes by the clock, 'to prevent sore nipple', and giving even shorter feeds in the first few days. The duration of feed does not matter at all - even in the first few days. Sucking too long has a bad reputation as a cause of sore nipples, probably because some babies who suck for a long time are sucking in a bad position. They are not satisfied, so they continue. Let the baby decide how long to feed for - not the clock. Make sure the baby latches on correctly, especially if it is fussy, or likes to suck for more than 10 minutes.[5]

The ideal situation of the baby and mother, threfore, is to have a flexible "on demand" feeding programme. The interval between feeds will determine the number of feeds the baby takes in any 24 hour period. There are no set rules for either the duration or the frequency of feeds that should be given. Some babies will want feeding at intervals of 1 1/2 - 2 hours, while others will go much longer between feeds (4-6 hours).

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NIGHT FEEDS

Night is the time when the mother will be resting or sleeping and the baby will have an opportunity to sucke as much as he desires. Her breasts will be frequently emptied and will have ample stimulation from sucking.[1]

As prolactin levels have been shown to rise in response to suckling, the practice of baby led feeding is likely to result in higher basal prolactin levels. Although the long term relationship between prolactin levels and milk production has not been clearly defined, it does appear that high levels of prolactin are necessary not only for the initiation of lactation, but are directly related to milk yields in the first two weeks at least. One study demonstrated that prolactin release in response to night time suckling is greater than during the day, thus milk production may get its greatest 'boost' when the baby feeds at night.[2]

Night feeds are convenient both to baby as well as mother, maintain continuity of elevated prolactin levels, prevent engorgement of breast and contribute to contraceptive effect of lactation.

If the milk is not removed as it is formed (as regulated by the baby's need to go to the breast) the volume of milk in the breast will rapidly exceed the capacity of the alveoli. The consequent engorgement is not only uncomfortable for the mother, but it will begin the process of lactation suppression. Feeding the baby at night will minimise or prevent the potential problem of engorgement.

Night feeds provide the infant with a substantial proportion of his 24 hour intake. The younger the baby, the more likely he is to consume the same volume of milk during the 12 hours from 5 P.M. to 5 A.M. as between 5 A.M.

to 5 P.M., that is 50 percent on an average. It is therefore, to be expected that the baby will be hungry at night and assuaging this hunger with formula feeds may lead to lactation suppression in his mother.[3]

Initially, many babies sleep for long periods in the day and demand feeds with great regularity at night. In poor communities, mothers often feed babies at night for several months. There is nothing wrong with this and it does appear more natural to give the baby milk when he wants it. Night feeds are especially useful for working mothers.

The frequent suckling, in the day as well as night, which results in continuity of elevated prolactin levels, also suppresses ovulation - although the exact mechanism is not yet clear. The contraceptive effect of breastfeeding, although not 100 percent reliable, may be of great importance to those who for personal or religious reasons do not wish to use conventional (western) methods.[4]

Night feeds, therefore provide frequent sucking stimulus to breast, maintain continuity of elevated prolactin levels, and are a source of significant nutrition to the baby. Night feeds are convenient both to baby as well as mother, prevent engorgement of breast and contribute to contraceptive effect of lactation. They are of special importance to working mothers. It is therefore vital that women are not subjected to any restrictions on feeds, especially at night.

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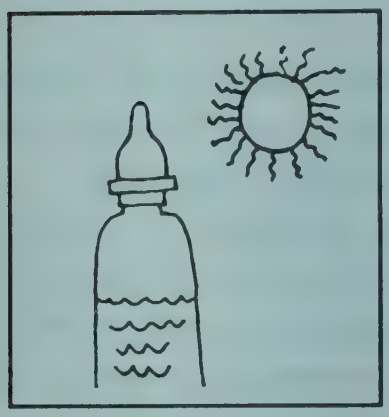
WATER NEEDS OF BREASTFED BABIES



The exclusively breastfed infant receives all of his or her water requirements from milk alone. Because of the relatively low concentrations of protein and electrolytes in human milk, as compared with cow's milk or other mixed diets, the infant's water needs can be readily provided by milk alone under normal circumstances. In many countries early supplementation with water, teas, juices and artificial milks is common. These practices are frequently recommended by health personnel believing that infants require supplementary liquids to maintain their water balance, particularly during the summer months. These fluids are frequently contaminated with potential enteric pathogens, more so during the summer when mothers might be more likely to include additional liquids in the diet. By avoiding unnecessary exposure to these contaminated liquids, the incidence of diarrhoea could be reduced. Moreover, by artificially satisfying the infant's hunger or thirst with unnecessary liquid supplementation, the mother could conceivably reduce milk production.

In exclusively breastfed infant, the child can maintain adequate hydration status even in hot environment. Sixteen Jamaican exclusively breastfed infants were observed under environmental conditions of 23° to 32°C household temperatures and 62% to 87% household relative humidity. The maximum urinary specific gravity observed was 1.015[1]. Milk intake and urinary volume and concentration were measured during 8 hours daytime observations of 40 exclusively breastfed Peruvian infants. Maximum home temperature ranged between 25°and 33°C; environmental relative humidity ranged between 49% and 96%. The infants voided between 0.9 and 6.3 ml urine per kilogram of body weight per hour (mean + - SD 3.4 + - 1.3 ml). The maximum urinary specific gravity in each infant ranged between 1.003 and 1.007.[2] A study done in rural India also demonstrated that urinary concentrations were within normal range

in exclusively breastfed infants even when the midday temperature was high (37°- 41°C) and humidity low (15.30%)[3].

Another study has been done in Cordoba, Argentina where daytime temperature ranged between 35°and 39°C and relative humidity ranged between 60% and 80%. The urinary osmolalities in eight exclusively breastfed infants in this environment remained less than 200 mosm/liter which is within the normal range.[4]

All the above studies done in different parts of the world with environment temperature varying from 23°C to 41°C and relative humidity ranging from low 15 % to high 96% demonstrate that healthy infants can maintain adequate hydration status while being breastfed exclusively and do not require additonal water.[1-4]

The Special Committee on Breastfeeding of Indian Academy of Pediatrics (1988) recommends that in an exclusively breastfed child who is passing urine frequently or gaining weight adequately, routine administration of water is not needed until the age of 4-6 months.[5]

Healthy infants can maintain adequate hydration status while being breastfed exclusively and do not require additional water. (1-4)

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BOWEL PATTERN IN AN EXCLUSIVELY BREASTFED INFANT

There are enormous variations in the frequency, consistency and colour of the stool of an exclusively breastfed infant.[1] He may pass several loose motions per day. The stools may even be watery and green in colour and may contain mucus and reducing substances. This is not diarrhoea and does not necessitate the use of any medication. Similarly some normal breastfed infants have very infrequent motions. The stools are soft. This need not be treated as constipation. [2]

The WHO's definition of diarrhoea (3 episodes / day) does not quite apply to breastfed infants.[3,4,5] Fully breastfed babies always have loose stools. Their stools are explosive, contain curd (in the early weeks), and may be bright green in colour. They may be frequent, as many as 24 stools in 24 hours.[6] When lactation becomes established on the third or fifth day intestinal hurry commonly results in the frequent passage of stool.[7] Transit time through the large bowel is relatively rapid and provided the infant is thriving there is seldom any need to worry, though reassurance may be needed.[1] The gut hormone and prostaglandin content of human milk is very different from that of cow's milk, and this may be part of the explanation of the greater looseness and often frequency of bowel in breastfed babies. The gut hormones include vasoactive intestinal polypeptides and gastrin (probably concerned with peristalsis), motilin (probably concerned with stool frequency), enteroglucagon (concerned with fat and carbohydrate absorption), and many other hormones.[8] Prostaglandin E and F, which may play a role in gut motility, are found in over 100 times the concentration in breast milk than in plasma.[9]

Physiological diarrhoea of an exclusively breastfed child is defined as frequent passage of loose motions in a healthy exclusively breastfed child. These motions may be green, watery and may even contain mucus. The term

is restricted to a child who is given breastmilk only and no water, and who inspite of passing frequent motions - at times every hour or two - remains healthy, happy and well hydrated and continues to thrive normally.[10,11] Often the baby opens his bowels during a feed[12] and this may appear only as a stain on the diaper.[7] The general practitioners, who form a large group of doctors, should be made aware of the dangers of stopping breast milk because of so-called diarrhoea.[13]

Physiological diarrhoea of an exclusively breastfed child is defined as frequent passage of loose motions in a healthy exclusively breastfed child. These motions may be green, watery and may even contain mucus.

A breastfed baby may not pass a stool for several days, but this is not constipation.[2,3,6,14,15] Breastmilk is such a good food that it is nearly all used and there is often very little waste, so there is not always enough to make a stool every day.[14,15] These stools are soft. It is very uncommon for them to have hard stools. Many babies appear to strain as they pass a stool, but this is normal. It does not mean that the stool is difficult to pass.[15]

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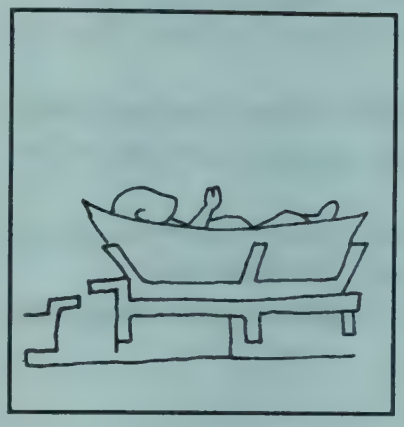
TEST WEIGHING



Having the mother weigh her baby before and after nursing is generally neither necessary nor a desirable way of judging the adequacy of milk supply.[1] The volume and composition of milk produced varies from feed to feed and individual to individual. Test weighing measures volume inaccurately and composition, not at all.[2] If it is necessary to know the volume of ingested breastmilk, test weighing should be carried out over a complete 24 hour period, using an electronic averaging scale.[3]

Since energy density of human milk varies considerably, measuring the volume taken by a baby gives poor information about energy intake.[4] It also does not tell anything about a baby's progress. The results obtained are likely to be misinterpreted. Small gains may cause the mother additional worry and in turn, her milk supply may diminish. She may think it necessary to give the baby a bottle to assure herself that the infant is getting enough and to see how many ounces can be taken. The result of the 'test bottle' may so discourage her that subsequent breastfeeding becomes impossible even when she has an adequate supply of milk.[1]

Test weighing does not judge mother's milk supply, milk composition, baby's energy intake and baby's progress.[1,2,4]

A study done by de Chateau P et al, reveals inhibitory effect of test weighing on lactation. Three hundred and ninety mother- infant pairs were divided into two groups, one of which was test weighed before and after each breastfeed and given supplements. The other group was neither test weighed nor received supplemental feeds. The test weighed group was five times more likely to stop breastfeeding during the first week and twice as likely to stop

during the second week. A year later when the practice had been discontinued by the unit, they found that the mean duration of breastfeeding was 95 days compared with the former 42 days.

Test weighing is positively harmful to a mother's confidence in her ability to breastfeed. Therefore, the practice of test weighing should be discontinued under normal circumstances.

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SIZE OF BREAST AND BREASTFEEDING

Some mothers with small breasts have an unnecessary fear that they may not be able to produce enough milk to meet the normal requirements of the baby.

The ability to breastfeed does not depend upon breast size. [1] The more generous breast is usually due to a more generous fat pad. During pregnancy the fat is replaced by proliferating acini. A mother with small breast should be encouraged to nurse, as she is the mother who needs most to prove herself.[2]

During lactation, small breasts can become overfilled more quickly than larger breasts so they may either leak or may have to be offered to the baby more frequently. As their storage capacity increases over the first few weeks, this becomes less of a problem.[3]

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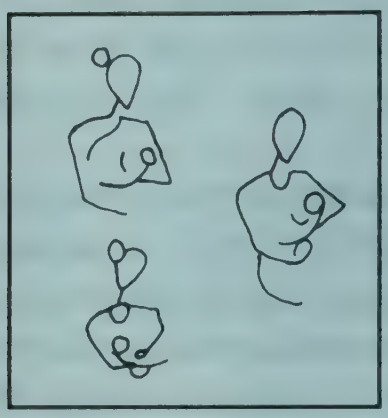
SORE NIPPLES



Sucking in a bad position is the commonest cause of sore nipple.[1] It is not necessary to limit the duration of feeds. Standard hospital suggestions of timed feedings to reduce the incidence of sore or cracked nipples may hinder development of milk supply. 100 women from wards where the feedings in the first post partum days were timed were compared to 100 women who stayed in wards where feeding lengths were determined by the mothers themselves. There was no significant differences in the incidence of nipple problems or breast engorgement. There was however, a highly significant difference in the number of women still breastfeeding. More women in the free suckling group were still breastfeeding (80) as contrasted with the timed suckling group (57)[2]. Babies fed on a schedule may damage the nipple skin more as they suck more strongly because they are so hungry.[3]

Even though sore or cracked nipple can be very uncomfortable, frequent short nursing promotes speedy healing. It would seem logical to suppose that letting the nipple 'rest' for as many hours as possible would have a healing effect. This is however not the case. If a crust is allowed to cover the wound, it only cracks open again as soon as the baby sucks.[4]

Many mothers experience immediate relief from nipple discomfort when they begin positioning the baby properly. Changing positions puts the pressure on a different part of a nipple.[5] Nursing may be started on unaffected breast or less affected breast, which will permit the initial 'let down' reflex to occur 'automatically', then the infant can be put to affected breast.[6] Expressed breast milk is to be applied to the nipple and allowed to dry. Healing is rapid.[2]

Frequent opportunities to the mother to cuddle the baby, keeping him close day and night helps to prevent and lessen nipple soreness and keeps up the spirits of the mother. With frequent feeding, the baby does not get

ravenously hungry, so he nurses less vigorously.

Even in presence of extremely sore nipples or mastitis, emptying of the breasts by manual expression or by allowing feeding is necessary. Expressed milk should be given to the baby from a dropper or spoon. As soon as the nipples respond to treatment, the baby can be put back on the breast.

For most cases of sore nipples, ointments and creams are not useful. In terms of achieving the long term goal of painfree, successful lactation, paying close attention to feeding technique (re-positioning) is likely to be far more effective than removing the baby from the breast ('resting and expressing').[7] The important point to check is that enough of the areola must be in the infant's mouth so that the baby is able to achieve 'breastfeeding' and not 'nipple feeding'.

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BREAST ENGORGEMENT

Some swelling or engorgement of the breast is normal from the 3rd to 7th day after delivery - when the milk first 'comes in' in a good amount. Frequent suckling may help reduce the engorgement. The engorgement of breasts usually subsides after about one week.[1]

Persistent milk engorgement is almost always iatrogenic.[2] It rarely occurs when mothers are enabled to feed their babies 'on demand' and as long as they want to suck day and night. It may be further prevented by ensuring that the baby is correctly attached on each occasion so that the milk is efficiently removed and the 'let down' reflex effectively stimulated.

Engorgement of breast is commonest in hospitals where prelacteal feeds and scheduled feeds are given to babies. Fewer women suffer from engorgement where 'rooming in' and early demand feeding is practiced.[3] If the breasts are so tense that it is difficult for the baby to feed, the areola may be softened beforehand by removing some milk.[4] If, for some reason, the baby cannot suck at all, give him the expressed milk.

The best management of engorgement therefore is prevention. The best treatment is frequent breastfeeding around the clock because sucking by the infant is the most effective mechanism for removal of milk. Relief is based on establishment of flow.[5]

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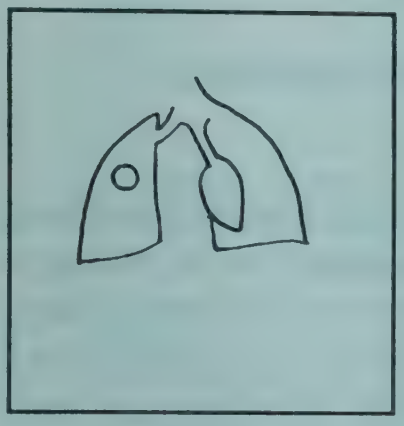
TUBERCULOSIS IN THE MOTHER AND BREASTFEEDING



Maternal tuberculosis is not a contraindication for breastfeeding.[1-8] Stopping breastmilk will not help as the mother has in any case to look after the baby and an infant who becomes malnourished on bottle feeds is more susceptible to develop active tuberculosis.[6] Most pediatricians now recommend that the baby continue nursing, while the mother and baby are kept under observation.[1,2,3,6,7]

If the mother's sputum test is negative (i.e. not infectious), there is no problem; if the result is positive, then with modern drugs she can become sputum negative within a few days. It is better to continue breastfeeding rather than to take the baby off the breast, in which case it receives no antibodies, but is still liable to be infected. In fact, often we have seen that it is the mother who has been asked to stop breastfeeding who then bottle feeds the baby, holding it on her lap[1]!

Maternal tuberculosis is not a contraindication for breastfeeding.[1-8]

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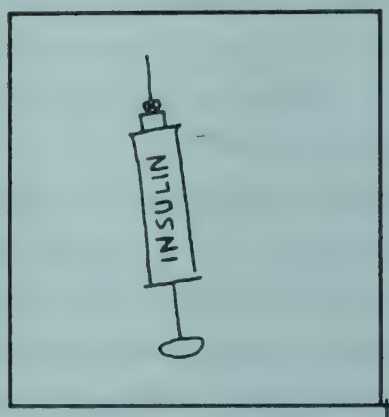
DIABETES IN MOTHER AND BREASTFEEDING



A mother, although diabetic, should be offered the same opportunity to breastfeed that is offered to all patients unless her disease has so incapacitated her that any stress is out of the question. Some diabetics enjoy a postpartum remission of their diabetes that may be minimal or complete. The remission may last through lactation; it may last several years. The remission has been attributed to the hormone interactions that affect the hypothalamus and pituitary gland during pregnancy, labor, delivery and lactation. Many diabetics report a feeling of well-being during lactation.[1]

In addition to the usual advantages that nursing affords the baby, it is highly beneficial to the mother because lactation is an antidiabetogenic factor. The metabolic process of milk production and lactose supply added to the hormone balance during lactation serves to improve the health of the diabetic mother[2-12] Seventeen breastfeeding, insulin-dependent diabetic mothers were followed, 14 of whom fed their babies for more than nine months. High motivation and unusual support from family, friends and health professionals meant that all these women were able to breastfeed successfully. Care is especially necessary if baby and mother are separated after delivery. Frequent expression of milk, or preferably, visits to the baby for him to be cuddled and put to the breast are essential to work up the milk supply.[8] Most mothers find that during the first 4-6 weeks, their insulin requirement is less than before they become pregnant.[3,8] While it is true that trace amounts of insulin are transferred into breast milk, infant's digestive enzymes inactivate the hormone.[9]

Lactation is an antidiabetogenic factor

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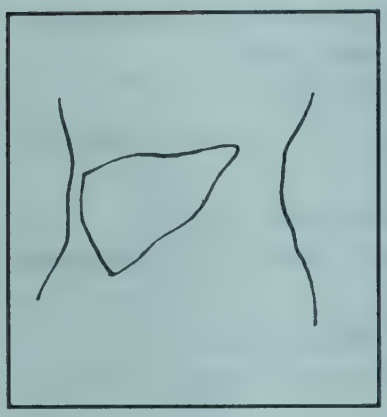
HEPATITIS 'B' IN THE MOTHER AND BREASTFEEDING



Hepatitis 'B' antigen positive mothers or carriers should have their newborns 'roomed' with them and breastfeeding should be allowed.[1] The benefits of breastfeeding outweigh the risk.[2] Although breast milk transmission is possible, there is no difference in frequency of antigenemia among breastfed and non-breastfed babies in a long term follow-up study of 147 mothers who were carriers of hepatitis 'B' antigen.[3]

Discontinuing breastfeeding for the mother's own baby may not be appropriate especially when one is dealing with underprevilaged women in developing countries where hepatitis is often endemic.[4]

There is no difference in frequency of antigenemia among breastfed and non-breastfed babies born of mothers who were carriers of hepatitis 'B' antigen.[3]

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BREASTFEEDING, BREASTMILK AND HUMAN IMMUNODEFICIENCY VIRUS (HIV)

The immunologic, nutritional, psychological and child-spacing benefits of breast milk/breastfeeding are well recognised. They have been increasingly reflected in national and international child and maternal health policies. Breast milk is also important in preventing intercurrent infections which could accelerate progression of HIV related disease in already infected infants. In many circumstances and, particularly, where the safe and the effective use of alternatives is not possible, breastfeeding by the biological mother should continue to be the feeding method of choice irrespective of her HIV infection status.[1-3]

Although concern about the possibility of the spread of the AIDS virus through the user of donor milk has resulted in closure of many banks, recent research strongly suggests that pasteurisation eliminates any risk of the transmission of HIV.[3,4]

Breastfeeding by the biological mother should continue to be the feeding method of choice irrespective of her HIV infection status.[1-3]

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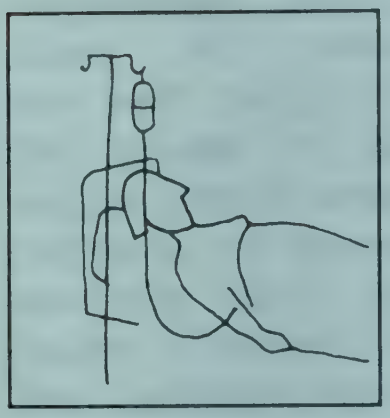
BREASTFEEDING IN INFANTS BORN BY CAESAREAN SECTION



A study of factors which affect breastfeeding suggests that there is an association between caesarean section and early discontinuation of breastfeeding in certain mothers.[1]

A mother with caesarean section may find it difficult to start with at first because of the wound. She can start trying to put the baby to the breast as soon as she recovers from the anaesthetic. Since the wound makes all movements painful she will need a lot of extra help - for instance changing the baby from side to side may be difficult.

She will also need psychological support, as her self confidence may falter, especially if her milk is a little slow to come in. She may have heard that it is difficul or impossible to breastfeed after a caesarean section, so she needs help to dispel her doubts.[2]

A study of initiation of lactation in women with normal and caessarean section delivery suggests that the method of delivery makes no significant difference to the timing of the milk coming in or the changes in the concentration of the major milk constituents in the first 7 days postpartum.[3]

The method of delivery makes no significant difference to the onset of lactation or composition of the breastmilk.[3]

Lawrence suggests that breastfeeding may have positive impact on mothers delivered by caesarean section.[4] The oxytocin production stimulated by sucking at breast will assist in the involution of the uterus. But, the more important advantage is, that the traumatised psyche of the mother whose delivery did not occur naturally as planned is more quickly healed when she

can demonstrate her maternal capabilities by breastfeeding.

The Special Committee on Breastfeeding of Indian Academy of Pediatrics recommends that babies whether delivered normally or after caesarean section should be put to breast soon after delivery but definitely within four hours after birth.[5] Various authors have stressed that there is no evidence to support the long established belief that caesarean section itself has any deleterious effect on the establishment of lactation. These babies born of caesarean section should be roomed-in with their mothers.[6-8]

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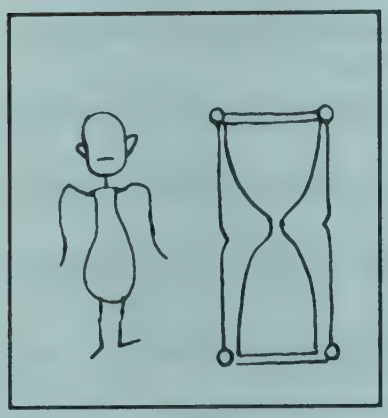
PRETERM NEWBORNS AND BREASTFEEDING



As cow's milk is for calves and human milk is for humans, so is preterm milk for preterm babies.

Preterm infants fed human milk could attain weight gain that was similar to what normally would occur in utero if the infants had remained there.[1] More rapid growth has been found in preterm infants fed milk from mothers delivering preterm than in those fed milk from mothers giving birth at term.[2]

Preterm milk compared to full term milk is higher in protein and nitrogen concentration during early lactation.[3,4] During the first two weeks of life, protein and energy requirements of infants are met by feeding them on their own mother's milk. By the fourth week of postnatal life, energy content of preterm milk is adequate but protein concentration is borderline and growth of preterm should be closely watched then.

Preterm infants fed human milk could attain weight gain that was similar to what normally would occur in utero.[1]

The protective properties of human milk against infection is one of the key reason to provide human milk for high risk infants including preterm babies prone to devastating infections- including sepsis and necrotising enterocolitis. Narayanan et al have studied the impact of administering human milk to high risk low birth weight infants in preventing actual risk of infection. Significantly less infection is found in infants receiving human milk as compared with those receiving formula (9 of 32 on breastmilk, 24 of 38 on formula).[5]

Another study included 261 infants who were divided into four groups with different feeding schedules. Group I - expressed human milk for all the feeds. Group II - human milk for half the feeds and nursery formula for the rest. Group

III - Colostrum 20 ml three times a day along with nursery formula and Group IV - Control - only the nursery formula. Infections were found to be significantly less in the group which received human milk.[6] Infections rate was reduced even with limited volumes of colostrum (10 ml) administered few times a day to high risk low birth weight infants as compared with matched controls.[7] The same author reported that raw human milk containing organisims may not necessarily cause infection even in high risk newborn infants. However, care must always be taken to keep this contamination to a minimum level.[8]

As compared to human milk the other risks associated with the use of animal milk or formula milk for preterm babies includes infection, inappropriate dilution, metabolic disturbance and allergic disorders. For the low birth weight infant in the third world, human milk is therefore a must - a necessary 'passport to life.'[9] Besides the anti-infective and nutritional values of preterm milk and human milk in general, it has been found that gastric emptying time for milk formula feeds are roughly twice as long as those for human milk.[10] It means that with formula feeds there is increased risk of aspiration pneumonia and chemical pneumonia due to aspiration of a heterologus type of protein.

Preterm babies are neurologically and developmentally competent to suck and swallow at 32 weeks gestation. Experience at breastfeeding may aid in the maturation of this process. However, attempting to provide sucking experience with either a bottle, teat or a dummy may be deterimental to some in the long term, as the techniques of breastfeeding and bottle feeding are quiet different from each other.

Studies have shown that preterm infants allowed intermittent sucking on a 'blind teat' gained weight more rapidly than those who were not. It is possible that sucking facilitates the utilisation of tube fed milk.[11] This may be due to release of lingual lipase during sucking. Allowing preterm infants to suckle at their mother's breast as soon as they are able would therefore be of benefit to both the baby and the mother.

In one of the studies, three mother-infant pairs were videotaped during feeding sessions to analyse breastfeeding behaviours. Infants in the study were at least 35 weeks post conceptional age; all weighed less than 1500 gm at initial oral feeding. Results suggest that co-ordination of suck and swallow reflex (at 34-35 weeks) is an appropriate indicator of readiness to breastfeed. The authors question the validity of infant weight as a criterion for initiating breastfeeding.[12] Infants physical and neurological status is associated with ability and readiness to nurse, reflecting the need for feeding on demand in the neonatal intensive care unit.

Babies as small as 1300-1400 gm can successfully breastfed if hospital staff are well informed and hospital structures supportive.[13]

Babies are naturally equipped for feeding at the breast, so once they are developmentally competent they should not be denied the opportunity to feed on the grounds that it would be 'too tiring'. It has been demonstrated that preterm infants who are able to suck find breastfeeding less demanding than bottle feeding. A recent study done in Chicago, Illinois measured the tc PO of babies (average weight 1300 gm) during bottle and breastfeeding.[14] The babies acted as their own controls. The amount of tissue oxygenation was considerably reduced during bottle feeding as compared with breastfeeding. This reduction reflects the interruption in ventilation caused by the mechanics of bottle feeding. During breastfeeding there was less interruption in ventilation, since the sucking, swallowing and breathing during breastfeeding was observed to be more co-ordinated than during bottle feeding. It was also found that the body temperature of the preterm infant was significantly higher after breastfeeding then after bottle feeding. This difference was attributed to the position of infants and the milk temperature. The high density of thermoreceptors in the facial area which is in contact with the maternal breast during breastfeeding provides heat transfer to the infant.

Preterm infants who are able to suck find breastfeeding less demanding than bottle feeding.[14]

Long term survival of preterm and low birth weight babies depends largely on the mother's ability to feed and manage these infants. Separation of preterm infants in neonatal care units does not necessarily impair the mother's ability to breastfeed. The attitudes of staff and the practical routines in nurseries and neonatal care unit should support these women in sustaining lactation. Frequent expression of milk in mothers of non-nursing preterm neonates is associated with a significantly greater milk production. Early participation of mother in feeding their infants either by providing expressed milk for gavage or spoon fed infants or by directly breastfeeding enhances normal bonding between mothers and their preterm infants.

Excellent reviews of the problems of feeding low birth weight babies are available free of charge from the World Health Organisation.

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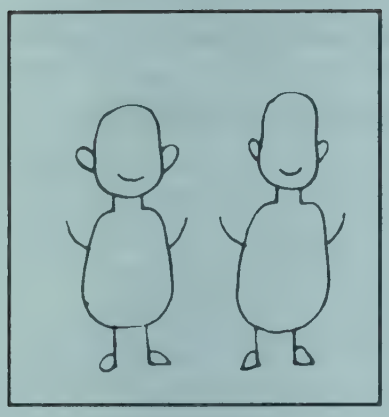
BREASTFEEDING TWINS



Breastfeeding twins is practical and possible. It promotes a special closeness with each twin individually, which otherwise might be much harder to achieve. Nursing time can be a time to relax - perhaps only time to rest during the whole day. The fact that breastfeeding is less expensive is a double advantage with twins.[1]

All mothers have milk in two breasts. Many mothers have milk for more than one child, especially at the outset of lactation. Nature apparently is well prepared for the birth of twins.

Scores of mothers have breastfed twins, and some have even fed triplets.[2-12]

A mother who feeds two babies produces a very large amount of milk, and needs to eat enough herself. She also loses a substantial amount of fluid; so she must drink more than usual too. Most of the mothers prefer to feed on demand, and that each mother sometimes feeds her infant individually and sometimes simultaneously.[4] Mothers delivering twins need a lot of support and encouragement to believe that they can breastfeed them both. Remind her that more sucking makes more milk; so if two babies suck there will be enough milk for two.[7]

A review of 173 questionnaires returned by mothers of twins was made. Forty-one mothers (23.7%) breastfed from birth, although 30% of the infants were premature. Of those who did not breastfeed,9% were told not to by their doctors, 11% did not think it was possible, and 11% did not think they would have enough milk for two. Of multiparas who had breastfed their first child, an equal number breastfed and bottlefed. Of those mothers who breastfed, 30

breastfed over 1 month and 12 over 6 months.[2]

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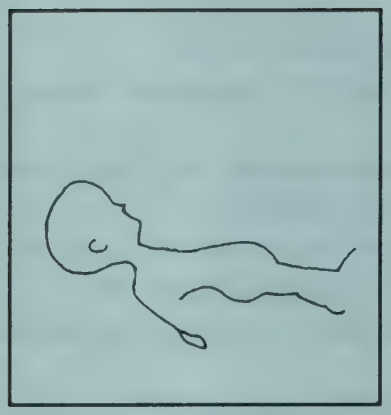
BREASTFEEDING SICK NEWBORN



A newborn who is sick or hospitalised should receive breast milk.[1] The ideal milk is expressed breast milk from the baby's own mother, and this should always be used.[2-4] Breastfeeding should not be stopped because of minor illnesses in the baby or mother. Under no circumstances should a mother be told that her milk is not good for her sick infant.[5] Breast milk is the most easily digested food for an ill baby.[6] 19.4% of mothers stopped breastfeeding due to infant's sickness and 15.3% of them stopped because of their own illness.[7]

A sick or hospitalised newborn should receive breastmilk[1]

Infants who have self-limited acute illnesses, such as fever, upper respiratory infection, cold, diarrhoea or contagious diseases like chicken-pox, do best if breastfeeding is maintained. Because of breast milk's low solute load, an infant can be kept well hydrated despite fever or other fluid losses. If respiratory symptoms are significant, an infant seems to nurse well at the breast and poorly with the bottle.[8] If a newborn is starved after surgery, the mother should be asked to keep expressing her milk every 2 to 3 hours to maintain lactation.

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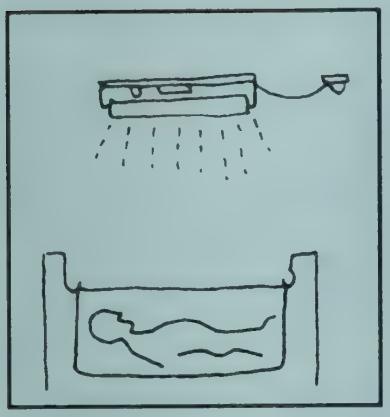
NEONATAL JAUNDICE AND BREASTFEEDING



The most effective way of reducing the incidence of hyperbilirubinemia in breastfed neonates is by giving frequent breastfeeds without complementary or supplementary feeding of water, glucose solution or formula.[1-3] If phototherapy is indicated, then it can be given in the maternity unit so that feeding is not limited.[4]

Nursing as soon as possible after delivery and exclusive and very frequent breastfeeding - 10 to 12 times in 24 hours and the usually accompanying frequent and voluminous stooling are associated with lower bilirubin levels. Delayed passage of meconium, regardless of feeding method, is associated with higher levels of bilirubin.[5] Increased frequency of nursing during the first 3 days of life was linearly associated with a decline in 3rd day serum bilirubin concentrations. Infants who were nursed on an average of six times per day had a mean serum bilirubin concentration of 10.5 mg/dl. Those nursed 11 or more times a day had a mean of 5 mg/dl. These data suggest that it is the frequency and not the duration of feeding that is critical.[6] It is possible that infants who are not being breastfed at sufficiently frequent intervals (every 2 to 3 hours during the first days of life) may become jaundiced.[7]

Frequent exclusive breastfeeding without complementary or supplementary feeds is the best way to reduce the incidence of neonatal hyperbilirubinemia[1-3]

A bilirubin level greater than 13 mg/dl in a term infant who is not breastfeeding requires evaluation, whereas a bilirubin level greater than 15.5 mg/dl should be necessary to arouse concern in a breastfed infant.[8] The temporary interruption of breastfeeding for 24-48 hours is reserved for bilirubin

levels approaching 20 mg/dl. The need for it can often be prevented by judicious supplementation with donated human milk or formula during continued breastfeeding while the bilirubin levels are peaking.[5] Theoritically one might think that breastmilk jaundice might present a possible danger of brain damage. In fact such damage has never been shown to occur. There is no need to discontinue breastfeeding because of breastmilk jaundice. The jaundice spontaneously disappears when breastfeeding is continued, but it may not disappear completely for a month or two.[9]

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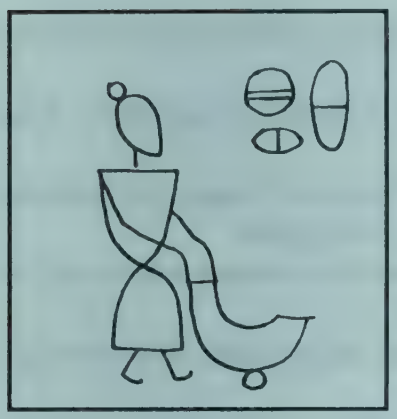
MEDICATIONS TO MOTHER AND BREASTFEEDING



Should a mother receiving medicines for her ailment be allowed to nurse? Is the drug present in her milk likely to harm the breastfed infant? A review of recent literature suggests that the beneficial effects of breastfeeding easily outweigh the small risk attached to the presence of most drugs in breastmilk.

Most drugs taken by a lactating mother are excreted in her milk, but usually the amount will be too small to affect the baby.[1] Drugs that are not absorbed orally, such as heparin or insulin, pose no problem to the infant, and drugs used routinely in the newborn period can be taken safely by nursing women. Drugs to which the infant has been exposed throughout gestation, such as anticonvulsants, add little additional risk when ingested postnatally by way of breastmilk. Drugs contraindicated in infancy, such as lithium, antimetabolites, and radioactive compounds should not be ingested by means of breastmilk. Often a safer drug can be substituted for the offending one, or breastfeeding can be temporarily interrupted, such as in the case of a radioactive preparation taken for a diagnostic scan. A mother taking medication should feed the baby just prior to drug doses and try to avoid nursing at times of peak drug levels.[2]

The amount of a drug to which the baby is exposed as a result of breastfeeding depends on the concentration of the drug in milk at the time of feeding, the amount of milk consumed, the extent to which the drug is absorbed from the gastrointestinal tract, and the ability of the baby to eliminate the drug.[1]

Many factors affect the concentration of the drug in breastmilk.[1,3] For instance small compounds with molecular weight of less than 200 appear freely in milk. Large compounds such as heparin do not pass into the milk. The drugs that are not ionised at blood pH will traverse the alveolar cell membrane with greater ease than will highly ionised compounds. Since milk pH is about 7 or

slightly less, milk will act as a trap for a weak base like erythromycin. Lipid solubility of the drug affects the speed at which a drug enters the milk. Highly protein bound drugs are less available for passage from plasma to milk. Most drugs are less highly bound to milk proteins than to plasma proteins. The dose given to mother and the distribution of the drug in the maternal body fluid affects the concentration of the drug in breastmilk. Drugs may be metabolized by the maternal body to active or inactive compounds.

The practical implications of use of drugs in a lactating mother are as follows:[3]

1) Breastfeeding is contraindicated when mother is receiving radioisotopes, cytotoxic drugs and lithium.[4]
2) Continue breastfeeding but use with caution the following drugs in a lactating mother - chloramphenicol, oral contraceptives, ergot, aspirin (large doses), ephedrine, pseudoephedrine, meprobamate, diazepam (large doses), indomethacin, metronidazole, sulphonamides, dapsone, nitrofurantoin, nalidixic acid, cimetidine.[1]

It is preferable to prescribe alternative drugs. Sometimes it may be possible to minimize the amount of harmful drug reaching the baby by avoiding feeding at times when milk levels are highest. The time of peak milk levels in relation to the dose varies widely between drugs. It is usually between 30 minutes and two hours after oral dosing. As mentioned earlier the best policy is to feed the baby just prior to drug doses.

With a number of the above drugs, harm is likely to occur only in presence of specific situations. For instance, when the nursling is G-6-PD deficient, avoid sulphonamides, dapsone, nitrofurantoin and nalidixic acid.

With some of the drugs, a few infants may develop drowsiness, jitteriness or hypoprothrombinemia. These side effects are easy to monitor and can be avoided with few easy measures. Therefore, in these cases, breastfeeding should be continued.

3) In general if a drug is used therapeutically in the neonatal period, there is no need to be concerned about its use in breastfeeding women.

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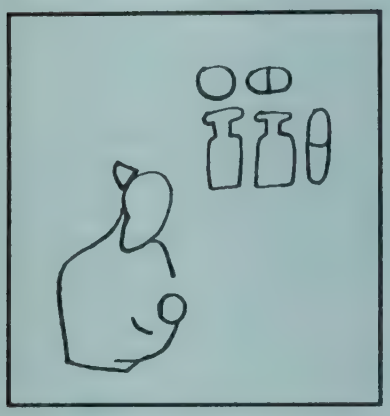
METOCLOPRAMIDE FOR ENHANCING LACTATION



There has been a world wide interest in the need for promoting breastfeeding of infants. Metoclopramide is a relatively safer agent in lactational failure for enhancing lactation.[1-10] All mothers experienced increased production of milk when 10 mg was given orally every 8 hourly for 7 to 10 days.[10] Role of metoclopramide in promoting lactation, was evaluated in 20 healthy mothers having inadequate or no breast milk secretion.[7] Improved lactation was observed in 90% of cases which was sustained even after cessation of therapy. No untoward side effect was encountered in any of the mothers or their infants.

Metoclopramide is a relatively safer agent in lactational failure for enhancing lactation.[1-10]

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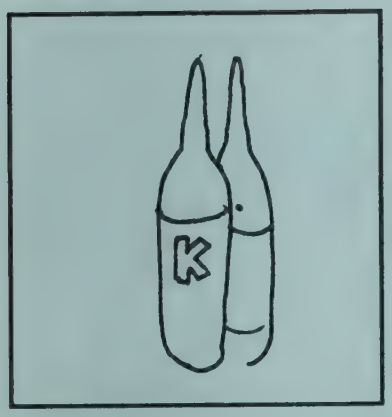
VITAMIN K IN BREASTFED NEWBORNS



Breast milk is a poor source of vitamin K, supplying 2 to 15 mg/litre of it.[1] The infant at birth is not generally deficient in vitamin K but may rapidly become so because of the intestines being initially free of bacteria. Breastfed babies are particularly likely to be deficient because of the lower content of vitamin K in the milk and probably because the bacterial growth supported by it does not produce much vitamin K. This can be confirmed by significantly prolonged prothrombin time in breast fed babies without vitamin K.[2,3]

The low vitamin K content of human milk may contribute to hemorrhagic disease of the newborn.[4] It typically occurs in a breastfed baby who develops spontaneous minor or major bleeds early in life due to decreased plasma values of vitamin K dependent clotting factors II, VII, IX and X with reversal of all abnormalities following parenteral administration of vitamin K.[5-14] It is therefore recommended that all infants should receive vitamin K,0.5 - 1.0 mg at birth, regardless of feeding plans, to prevent hemorrhagic disease of the newborn caused by vitamin K deficiency in the first few days of life.[4,6,10,11,15-18]

However, it is now being recognised that colostrum is rich in vitamin K[5].It is possible that the increased incidence of vitamin K deficiency in the newborn might, have been due to restricted breastfeeding patterns and not due to a true deficiency of vitamin K in mother's milk

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All infants should receive Vitamin K at birth regardless of feeding plans.

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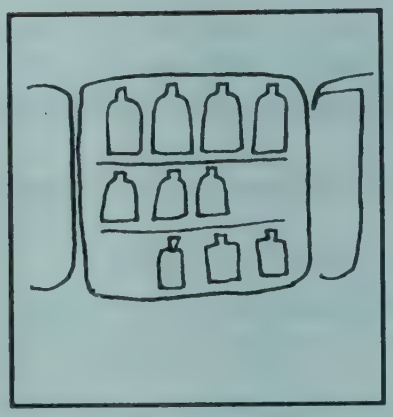
HUMAN MILK BANK
(The storage of human milk and cross-nursing)



There has been a resurgence of interest in milk banks in recent years, paralleling the interest in breast milk in general.[1] The primary aim of milk banking is to supply human milk to high risk infants who for any reason cannot be directly breastfed.[2,3] This objective can be achieved by a variety of means ranging from elaborate systems with sophisticated equipment and high-level technologies, to more moderate establishments, simple methods with the use of only a refrigerator, to mere expression of milk by the mother or a donor and immediate supply to the infant. It is important to realise this; otherwise many centres in developing countries may wrongly decide not to use human milk just because they do not have the so-called "Milk Banking" facilities.[2]

Expressed breast milk prevents infection in low-birth-weight infants.[4,5] Human breast milk is best collected by manual expression in a clean container. Washing of breast and hand does not significantly reduce the bacterial contamination. Bank milk collected by manual expression is less likely to be contaminated than that collected by hand pump even when pumps are boiled.[6] There is no bacteriological benefit to discard the first 5 to 10 ml of milk pumped from the breast. Samples had no different bacteriologic counts when this was done. This is particularly important initially when early colostrum and milk are less in total volume but high in value to the infant.[7] The anti-infective factors are highest in early milk.[8]

Human breast milk is best collected by manual expression in a clean container.[6]

The type of container used for collecting expressed breast milk effects its

immunologic factors.[9-11] A significant difference in the survival of the leucocytes is reported when the milk is collected and stored in plastic containers rather than glass, since the cells apparently stick to the glass. The phagocytosis of these cells, however, is not affected by the container.[10] Polyethylene bags were found to spill easily, to be harder for mothers to fill without contamination and to be difficult to handle in the nursery. The containers also leaked and punctured easily. Polyethylene also resulted in 60% lower secretory IgA levels because of adherence to the material. It appears that polyprolylene plastic containers may have a significant advantage in maintaining the stability of all constituents in human milk collections and may be easier and safe to handle.[9]

The human milk stored in clean, but not sterile containers, yield minimal bacterial growth even after ten hours. Median number of colony forming units (CFU)/ml of milk after ten hours, whether refrigerated or stored at room temperature, was the same and not signifantly different from the samples cultured immediately.[12] Bacterial colony counts progressively decrease after prolonged refrigeration.[13]

Human milk stored at room temperature, yield minimal bacterial growth even after ten hours.[12] This milk can be safely given to the newborn.

Unheated breastmilk, compared with pasteurised breastmilk, inhibits bacterial growth and may protect against harmful bacterial contamination.[14] With heat there is decrease in total leucocyte count, in specific antibody titre to E Coli[15] and in immunological components.[16] Pasteurisation, if used, should be at minimum temperature capable of adequate bacterial killing (about 62°C for 30 min.)[16] Feeding premature infants their own mother's raw milk reduces gastrointestinal infection and enhances weight gain.[17]

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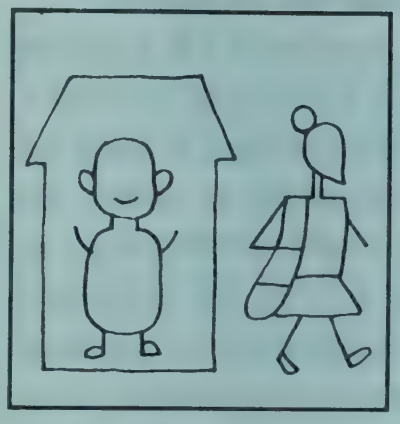
BREASTFEEDING AND WORKING MOTHERS



Investigations have been undertaken to study whether women working outside their home breastfeed less than non-employed women. The results have so far been inconclusive.[1] Many mothers have continued to breastfeed their babies and keep them healthy while they continue in full-time employment. Some of them are nurses and doctors.[2] The breastfeeding rates for working women do not show that breastfeeding and employment are mutually exclusive.[3] When the factors influencing the duration of breastfeeding were examined at 6 months, only 5 mothers of 116 listed "return to work" as a reason for discontinuing.[4] In some part of the world, women working at home have been found to be less likely to breastfeed then those with salaried employment outside the home.[5,6] Employed mothers breastfed more often (55.4%) than non-working mothers (45.9%). At 5 months, 33% of the former and 23% of the latter were breastfeeding.[5] Well educated mothers who are breastfeeding are returning to work and maintaining lactation at the same time.[8] In Finland, the incidence of mothers breastfeeding at 1 month is 78% among non- working and 80% among working mothers. The duration is also unaffected; 29% of non-working and 32% of working mothers are breastfeeding at 3 months and 8% and 7% at 6 months.[9] Among the reasons for weaning, starting bottle feeding or not initiating breastfeeding - employment was rarely mentioned.[9,10] Only 15% of the mothers of babies who were giving artificial milk were working outside the home.[11]

Breastfeeding rates for working women show that breastfeeding and employment are not contradictory.[3]

While the mother is on maternity leave, she should breastfeed her child night and day. When she returns to her job, she must breastfeed her child during the night, before she goes to work in the morning and at noon if she goes home for lunch. In between, the baby can be given expressed breast milk. Once they have been motivated to organise themselves in this way, convinced that it was important, their babies increased their intake of milk at night (they continued to share their mother's bed) and slept longer hours when the mother was away. **In other words, they changed their rhythm of sleeping.**[11,12] Mothers who expressed or pumped their breasts at missed feedings were more likely to nurse for a longer period than mothers who chose not to pump.[13]

Paid maternity leave of not less than three months, postnatal job security and economic support should be provided to all mothers whenever possible, and wherever possible, and the responsibility for economic support during the maternity leave should be carried by government, the industry in which the women is working and other relevant national and international institutions. Creches, paid breastfeeding breaks and other facilities should be provided, whenever appropriate, in industry, and in other relevant institutions or close to the place of work to permit mothers to continue breastfeeding and have close contact with their babies. Financing of creches and other mechanisms that allow for this continued contact of breastfeeding should be carried by government and/or the industry in which the mother is working.[14] A study conducted in New Jersey shows that changes made by an employer (a hospital) to facilitate breastfeeding after return to work had a very strong effect on the duration of breastfeeding.[15] The average breastfeeding duration before the programme was initiated, was six months, but the duration jumped to 11.7 months after the programme was implemented. Government of India encourages mothers to combine the leave due to them with maternity leave. Doctors can support such mothers by issuing a certificate to extend their leave (p. 73)

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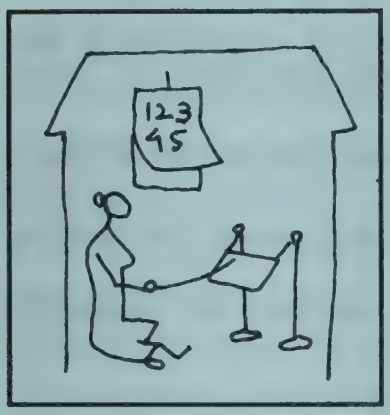
LEGISLATION IN INDIA RELATED TO MATERNITY LEAVE AND BREASTFEEDING[1]



Provisions to support breastfeeding

Maternity leave policy - Minimum of 12 weeks leave is allowed. 13 weeks of contribution during past 26 weeks and 160 days employment during the past year are prerequisite to qualify for maternity leave. Women employed by Central and State government are paid 100% salary for a period of 90 days. This leave may be combined with other kinds of leave, for a period of upto 60 days. Extension of leave is allowed for medically certified complications or infant's ill health. Dismissal from job during maternity leave is prohibited.

Facilities for nursing - The law requires enterprises employing more than 50 women to provide nurseries for children under six. Two nursing breaks per day are allowed for 15 months. Time of nursing break is counted as time worked.

Other Considerations:

1) Pregnant women and nursing mothers should be prohibited from working overtime or on night shifts.
2) If a woman's work is judged to be injurious to her health, the employer must provide a different job.
3) Mothers should be provided privacy for expressing breast milk and facilities for storing expressed milk.
4) Women who take maternity leave should be guaranteed no loss in seniority, promotion or pension rights.

REFERENCE

1) Legislation and Policies to support maternal and child nutrition - Published by American Public Health Association, 1989, 6:31

A Certificate to Extend Maternity Leave and Breastfeeding

Following is a draft of a letter which has almost always worked. If there is no family history of allergy, the third paragraph may be omitted.

Dr....., M.B.B.S. etc. Address:

Date.....

This is to certify that Baby ....., born on ..... is under my care. He is an exclusively breast-fed child and is thriving extremely well.

It has now been scientifically proved that mothers who breastfeed their babies exclusively for at least the first 4 months of life have a definite advantage over mother's who are not able to do so. Their babies later in infancy and in early childhood fall ill less often and hence frequent absentism on resumption of duties is found to be less in such working mothers.

Baby ..... also has a strong family history of allergy from side of both parents. Such babies are prone to get allergic disorders like Asthma and Eczema. But this risk is markedly reduced if the baby is exclusively breastfed for at least first 4 months of life – preferably for 6 months.

In light of above and in interest of all concened – the baby, the mother and the employer, I strongly recommend that .....'s mother may please be given leave till the baby completes 4 months of age.

Dr. .....

Ten steps to successful breast-feeding

Every facility providing maternity services and care for newborn infants should:

1. Have a written breast-feeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breast-feeding.
4. Help mothers initiate breast-feeding within a half-hour of birth.
5. Show mothers how to breast-feed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk unless *medically* indicated.
7. Practise rooming-in — allow mothers and infants to remain together — 24 hours a day.
8. Encourage breast-feeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breast-feeding infants.
10. Foster the establishment of breast-feeding support groups and refer mothers to them on discharge from the hospital or clinic.

From: **Protecting, Promoting and Supporting Breast-feeding: The Special Role of Maternity Services**

A Joint WHO/UNICEF Statement

Published by the World Health Organization, 1211 Geneva 27, Switzerland

RECOMMENDATIONS OF THE INTERNATIONAL FEDERATION OF GYNECOLOGY AND OBSTETRICS FOR ACTIONS TO ENCOURAGE BREASTFEEDING[1]

The International Federation of Gynecology and Obstetrics:

Reaffirming that breastmilk is uniquely suited to the nutritional needs of the young infant; that its anti-infective qualities make it especially vauable in reducing the risk of illness in the young infant, and in continuing the protection initially provided by the placental transfer of antigens; that the psycho-emotional aspect of breastfeeding is important for the well being of the infant and mother; that regular and unsupplemented breastfeeding is associated with some degree of protection against a new conception occurring during a short period after delivery;

Reaffirming that everything must be done to promote and facilitate breastfeeding, and that in particular obstetricians and gynecologists have a vital role to play in this regard;

Noting that the prevalence and duration of breastfeeding has declined in many communities, and that decline is a factor that contributes to maintain or increase a high infant mortality and morbidity in many developing countries;

Noting that prenatal and maternity services have often failed to contribute to an effective preparation of the mother for breastfeeding or an adequate facilitation and encouragement of its establishment;

Noting that obstetrical practices that interfere with normal labour and delivery, or separate the mother from the newborn in the immediate post partum period, are serious obstacles to the initiation of lactation;

Noting that in many instances health staff themselves have been inadequately prepared for the communication of appropriate information to mothers;

Noting that the prenatal period is critical in the preparation for breastfeeding, and that it is at this time that all possible information can be given to mothers;

Noting that there are often competing and contradictory sources of information on infant feeding, and that prenatal and maternity services are often locations where such information is made available by non-health sources;

RECOMMENDS

1. That national societies of gynecology and obstetrics should provide all their members with information concerning the importance of breastfeeding, its unique qualities, the dangers implicit in any reduction in breastfeeding, and the steps they can take in promoting breastfeeding and through it better the health of infants and young children;
2. That specific guidelines be proposed concerning the type of educational inputs required during the prenatal perod, so as to inform the mother and assist her prepare for breastfeeding;
3. That obstetric practices that do not interfere with the normal process of labour and delivery should be encouraged, and the mother be allowed and encouraged to initiate breastfeeding as soon as possible, preferably within the first hour of delivery;
4. That information concerning breastmilk substitutes should not be displayed in any health facility and should be provided to the mother when it is deemed necessary, and then only by health workers;
5. That there be no provision of samples of breastmilk substitutes;
6. That information on breastfeeding be given to mothers and families as part of all pregnancy-related services;
7. That all obstetrics and gynecology staff be encouraged to monitor, if only informally, the rate of breastfeeding in relation to early morbidity for example, and that they be provided with regularly updated information on the trends in breastfeeding, and relationships between trends and successful interventions designed to promote breastfeeding;
8. That all efforts be made by members of national societies of gynecology and obstetrics to curtail all advertising of breastmilk substitutes, and distribution of free samples of these substitutes and baby foods.

REFERENCE

1) Recommendations of the Internal Federation of Gynecology and Obstetrics for actions to encourage breastfeeding. Int J Gynecol Obstet 1982, 20: 171–172.

RECOMMENDATIONS OF SPECIAL COMMITTEE OF INDIAN ACADEMY OF PEDIATRICS ON BREASTFEEDING[1]

Being aware that:

1) Breastfeeding remains the best feeding for all children.
2) Mother's milk supplies all nutrients needed for the first four to six months of life, including water.
3) Even inadequately nourished mothers can provide milk in sufficient quantity during this period.
4) In the second year of life, breastmilk remains an important source of nutrition for the young child.
5) Breastfeeding also helps in spacing children.

The Executive Board of the Indian Academy of Pediatrics recommends that:

1) Pediatricians should actively cooperate with their obstetric colleagues in spreading correct information on breastfeeding to all mothers during the antenatal and postnatal period. They should assist the mother prepare for breastfeeding during pregnancy. Pregnant and lactating mothers should be provided with extra calories in form of locally available food preferences, dietary habits and meal patterns.
2) Obstetric practices that interfere with proper lactation should be discouraged.
3) Baby should be put to breast soon after delivery but definitely within four hours after birth. This remains true for all babies whether delivered normally or after caesarean section.
4) To promote proper lactation, rooming-in of babies and 'on demand' breastfeeding schedule is strongly recommended. Practice of isolating normal babies for fear of infection from visitors and for other reasons in a separate nursery and feeding babies by clock should be discouraged.
5) Normal newborns do not need any type of prelacteal or supplemental

feeding with glucose or artificial milk as colostrum is enough to meet the needs of the newborn baby. However, if found essential, the same could be given with a spoon and not through a feeding bottle.

6) Most infections in the mother and commonly used drugs taken by her need not always come in the way of breastfeeding. Thus in case of maternal tuberculosis also, breastfeeding can often be continued. However, treatment of the mother and close observation of the infant is advised.
7) Restriction of breastfeeding for any length of time before and after the administration of oral polio vaccine is not required.
8) Normal exclusively breastfed babies may pass several loose motions each day. The stools may even be watery and green in color and may contain mucus and reducing substances. This is not diarrhoea and does not necessitate the use of any medication. Similarly some normal breastfed infants have very infrequent motions. The stools are soft. This need not be treated as constipation.
9) Infectious diarrhoea can occur in children who are on a mixed diet or those given contaminated water. However, breastfeeding should be continued in such cases.
10) In an exclusively breastfed child who is passing urine frequently or gaining weight adequately, routine administration of water and addition of outside milk, weaning foods, juices and soups is not needed until the age of 4-6 months as early addition of such items interfere with proper lactation and increase the risk of diarrhoea and allergic disorders like eczema and bronchial asthma.
11) A baby demands feeds frequently especially in the first few days after delivery. This is physiological and should not be taken as a sign of inadequate breastmilk. The baby may cry due to colic or other reasons and not necessarily due to inadequate milk.
12) A continuous effort should be made by all pediatricians to encourage fruits and freshly made family foods to be used as weaning foods as they work out to be far better, cheaper and beneficial than the marketed weaning foods. Such soft foods as porridge made with locally available cereals should be started between 4-6 months. Breastmilk should be continued along with solids.
13) Pediatricians should follow 'The Infant Milk Foods and Feeding Bottles (Regulation of Production, Supply and Distribution) Bill 1986' alongwith Resolution 39.28 passed by the Rajya Sabha and the 1986 World Health Assembly respectively in its letter and spirit. Thus Hospitals, Nursing

Homes and doctor's place of work should not be used for the display of infant foods, feeding bottles and teats. The manufacturers and distributors should not provide free or subsidised supplies of products within the scope of the Bill to hospitals and maternity wards. The Pediatricians should not recommend the use of specially formulated milk (so called "Follow-Up" milk) for older babies.

All types of inducements from the manufacturers and distributors of products within the scope of the Bill must be refused.

14) Employees of manufacturers and distributors should not be allowed direct or indirect contact of any kind with pregnant women or with mothers of infants and young children.

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1) Recommendations of the Special Committee of Indian Academy of Pediatrics on Breastfeeding. Indian Pediatr, 1988, 25: 873-874

CHILDBIRTH RECOMMENDATIONS[1]

In April 1985, World Health Organization (WHO) held a conference on appropriate technology for birth. Over 50 participants specialising in Obstetrics, Paediatrics and other relevant professions came together in Portaleza, Brazil. The participants unanimously adopted recommendations which WHO believes are relevant to the entire world.

Here are some of their recommendations:

*Informal perinatal care systems (including traditional birth attendants) must coexist with the official system and a collaborative approach must be maintained for the benefit of the mother. Such relations, when established in parallel, can be highly effective.

Women's mutual aid groups offer valuable social support and a unique opportunity to share information about birth.

*The whole community should be informed of the various procedures in birth care, so as to enable each woman to choose the type of birth she prefers.

*Information on birth practices in different hospitals, such as rates of caesarean section, should be available to the public.

*The induction of labour should be reserved for specific medical indications. No region should have rates of induced labour higher than 10 per cent.

*Artificial early rupture of membranes, as a routine process, is not justifiable.

*During delivery, the routine administration of analgesic or anaesthetic drugs (not specifically required to correct or prevent any complication) should be avoided.

*There is no indication for shaving nor for an enema before delivery.

*It is not recommended that the pregnant women be placed in a dorsal lithotomy position during labour and delivery. Walking should be encouraged during labour and each woman must freely decide which

position to adopt during delivery.

*The perineum should be protected wherever possible. Systematic use of episiotomy is not justified.

*There is no evidence that caesarean section is required after a previous caesarean section birth. Vaginal deliveries after a caesarean should normally be encouraged wherever emergency surgical intervention is available.

*The well-being of the new mother must be ensured through free access of a chosen member of her family during birth and throughout the post-natal period. In addition, the health team must provide emotional support.

*Women who give birth in an institution must retain their right to decide about clothing (hers and her baby's), food, disposal of the placenta and other culturally significant practices.

*The healthy newborn must remain with the mother whenever possible. Observation of the healthy newborn does not justify separation from the mother.

*Immediate breastfeeding should be encouraged even before the mother leaves the delivery room.

*Obstetric care that criticises technological birth care and respects the emotional, psychological and social aspects of birth should be encouraged.

REFERENCE

1) Specific recommendations of World Health Organization. Lancet 1985, 2:437

MATERNITY HOME SERVICES AND INDIAN NATIONAL CODE FOR PROTECTION AND PROMOTION OF BREASTFEEDING[1]

Following are the key points from the Indian National Code for Protection and Promotion of Breastfeeding:

* Health authorities should make sure that health workers know about the Code, know what it says and help them put it into practice.
* There should be no promotion of infant feeding products in health care facilities.
* Booklets, leaflets, brochures, posters, feeding bottles, cot tags, stickers, clinic cards, prescription pads and similar materials which advertise infant feeding products should not be permitted.
* There should be no display of artificial infant feeding products in health care facilities.
* Company marketing personnel, no matter what they are called should not be permitted to have contact with mothers.
* Artificial infant feeding should be the exception and not the rule. Only parents who need to artificially feed their infants should be instructed. Instruction should be given only by health or community workers. The instructions should include a clear warning about health hazards of artifical feeding.

Note: In May 1986, World Health Assembly has urged a total ban on donated and subsidized supplies of infant milk powders. Article 6.6 of Indian National Code has to be modified in this respect.

REFERENCE

1) Indian National Code for protection and promotion of Breastfeeding, Resolution N. 18-11/81-NT, Government of India, New Delhi, 1983

Summary of Study of Maternity Home Practices in Relation to Breastfeeding in Bombay

1) 75 obstetricians, 35 pediatricians, 92 nurses and 212 mothers in 75 maternity homes in north Bombay were interviewed personally between January 1988 to December 1988.
2) There was a wide gap between the knowledge of health personnel and the practice followed in the maternity homes for feeding newborn babies.
   2.1 87% obstetricians suggest antenatal check up of breast, but is was carried out in only 51% mothers.
   2.2 29% obstetricians, 51% pediatricians and 21% nurses suggested initiation of breastfeeding within one hour of delivery, but only 6% mothers did it. None of the caesarean or preterm baby was breastfed within an hour of delivery.
   2.3 92% obstetricians and 97% pediatricians suggested feeding colostrum to newborn but only 67% mothers followed this practice.
   2.4 51% obstetricians advised additional water feeds while 70% nurses did so.
   2.5 Demand feeding was stressed by 94% pediatricians and 77% obstetricians. But only 62% mothers were able to practice it.
   2.6 Breastfeeds during night was suggested by 97% pediatricians, 73% obstetricians and 84% nurses. 77% mothers followed it.
   2.7 76% obstetricians suggested exclusive breast feeds after discharge but only 48% mothers knew about it. 41% mothers did not receive any advice.
3) Prelacteal feeds appeared to be an established routine. The study revealed that 77% obstetricians, 63% pediatricians and 80% nurses advised prelacteal feeds while 81% mothers used the same for their babies.
4) Rooming-in was preferred by mothers. 75% mothers wanted rooming- in of their newborn. However only 56% obstetricians suggested rooming-in.
5) Obstetricians advised discontinuation of breastfeeding frequently in

presence of mastitis, breast abscess, various maternal sicknesses like fever, jaundice, tuberculosis and epilepsy and neonatal problems like prematurity and congenital anomalies.

6) Husbands of 69% mothers encouraged their wives to breast feed.
7) 7% obstetricians and 14% pediatricians advised use of pacifiers in the newborn.
8) 89% obstetricians and 23% pediatricians were not aware of the Indian National Code for Protection and Promotion of Breastfeeding.
9) None of the maternity homes had a written breastfeeding policy that was routinely communicated to all health care staff.
10) There was no training programme in the maternity homes to train health care staff in the skills of breastfeeding.
11) Number of breastfeeding support groups was negligible. Therefore the mother had to depend upon close relatives, friends, obstetrician or the attending pediatrician for advice in case of any difficulty in breastfeeding.

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Anand RK, Sureka PR, Nigam GK, Dalal M, Hathi HG : A study of maternity home practices in relation to breastfeeding in Bombay. Report submitted to UNICEF, Regional office for South Central Asia, New Delhi.

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